

WHAT IS CLAIMED IS

1. A routing control method in a mixed
environment of a hierarchial network and a non-
5 hierarchial network, comprising:
assigning the non-hierarchial network a
virtual hierarchy number that corresponds to a
hierarchy number in the hierarchial network,
10 attaching the virtual hierarchy number to
a packet to be relayed at a router located at an
entrance from the non-hierarchial network to the
hierarchial network when the packet is to be relayed
between non-hierarchial networks via the hierarchial
network,
15 performing a hierarchial routing control
by the virtual hierarchy number within the
hierarchial network, and
removing the virtual hierarchy number from
the packet to be relayed at a router located at an
20 exit from the hierarchial network to the non-
hierarchial network.

2. The routing control method in the mixed
environment of the hierarchial network and the non-
25 hierarchial network as claimed in claim 1, wherein
an address of the non-hierarchial network is
accommodated in an interface identification
information block of an address format of the
hierarchial network, and the virtual hierarchy
30 number is accommodated in a hierarchy information
block of the address format of the hierarchial
network for conventional packet relaying defined in
the hierarchial network and transmitting routing
information.

3. The routing control method in the mixed
environment of the hierarchial network and the non-

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hierarchical network as claimed in claim 2, wherein
each router of the hierarchical network comprises a
hierarchical routing table that performs routing
search by using only the hierarchical information
5 block as a key, and a conventional routing table
that performs routing search by using the
hierarchical information block hierarchical
information and the interface identification
information block as keys.

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4. The routing control method in the mixed
environment of the hierarchical network and the non-
hierarchical network as claimed in claim 3, wherein
each router of the hierarchical network uses the
15 hierarchical routing table when relaying a packet
between the hierarchical network and another
hierarchical network.

5. The routing control method in the mixed
20 environment of the hierarchical network and the non-
hierarchical network as claimed in claim 3, wherein
each router of the hierarchical network uses the
conventional routing table when relaying a packet
from the hierarchical network to the non-hierarchical
25 network, and from the non-hierarchical network to the
hierarchical network.

6. The routing control method in the mixed
environment of the hierarchical network and the non-
30 hierarchical network as claimed in claim 5, wherein
the router located at a boundary of the non-
hierarchical network and the hierarchical network
recognizes a packet relay from the non-hierarchical
network to the hierarchical network, and from the
35 hierarchical network to the non-hierarchical network,
by using a receiving interface name and a
transmission interface name when relaying the packet.

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7. A routing control apparatus in a mixed environment of a hierarchial network and a non-hierarchial network, comprising:

5 virtual hierarchy number assigning means
for assigning the non-hierarchial network a virtual
hierarchy number that corresponds to a hierarchy
number in the hierarchial network, and for attaching
the virtual hierarchy number to a packet to be
10 relayed at a router located at an entrance from the
non-hierarchial network to the hierarchial network
when the packet is to be relayed between non-
hierarchial networks via the hierarchial network,
 routing control means for performing a
15 hierarchial routing control by the virtual hierarchy
number within the hierarchial network, and
 virtual hierarchy number removing means
for removing the virtual hierarchy number from the
packet to be relayed at a router located at an exit
20 from the hierarchial network to the non-hierarchial
network.

8. The routing control apparatus as
claimed in claim 7, wherein the virtual hierarchy
25 number assignment means accommodates an address of
the non-hierarchial network in an interface
identification information block of an address
format of the hierarchial network, and accommodates
the virtual hierarchy number in a hierarchy
30 information block of the address format of the
hierarchial network for performing conventional
packet relay defined in the hierarchial network and
transmitting routing information.

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9. The routing control apparatus as
claimed in claim 8, wherein each router of the

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